DRAFT SECTION 404 (b)(1) EVALUATION REPORT

Illinois Department of Transportation

Memorandum

To:	Gregg Mounts	Attention: Ross Monk
From:	Michael Hine	By: Charles H. Perino
Subject:	Section 404(b) 1 Report*	
Date:	July 12, 2004	

*U.S. Route 20 (FAP 301)
Galena to Freeport
Job No.: P92-004-92
Jo Daviess and Stephenson Counties, Illinois

I. PURPOSE OF THIS EVALUATION

The proposed new U.S. Route 20 alignment will involve placement of dredged or fill materials into waters of the United States. Discharges of dredged or fill material into such waters are regulated under Section 404 of the Clean Water Act.

Under Section 404(b) of the Act, proposed discharges of dredged or fill material must conform to guidelines developed by the U.S. Environmental Protection Agency. On September 5, 1975, the Environmental Protection Agency published regulations (40 CFR 230) which outline criteria and procedures for evaluating activities subject to Section 404. On December 24, 1980, revised Section 404(b)1 guidelines were published, and became effective March 30, 1981. It is mandatory that the guidelines be applied to all proposed discharges of dredged and fill material subject to approval under Section 404. This evaluation will address proposed discharges of dredged and fill material for the construction of a four-lane freeway from Illinois Route 84 north of the city of Galena to Business U.S. Route 20 near Boston Road northwest of the City of Freeport in JoDaviess and Stephenson Counties, Illinois.

A Statewide Implementation Agreement (SIA) is in effect that provides for concurrent NEPA and Section 404 processes on Federal-aid highway projects in Illinois. The purpose of the SIA is to ensure appropriate consideration of the concerns of the Corps of Engineers, the U.S. Environmental Protection Agency, and the U.S. Fish and Wildlife Service, especially regarding

compliance with the Section 404(b)1 Guidelines. The Illinois Department of Transportation is required by the SIA to prepare this draft section 404(b)1 evaluation.

II. PROJECT DESCRIPTION

A. Location: The project area is located in northwestern Illinois and extends approximately 47 miles from Galena in Jo Daviess County to Freeport in Stephenson County. The proposed project includes construction of a new four-lane divided access controlled highway with the western terminus northwest of Galena near the intersection of U.S. Route 20 and Illinois Route 84 and the eastern terminus northwest of Freeport at the Freeport Bypass. The width of the right-of-way will vary between 300 to 600 feet depending on the terrain traversed. The project will contain eight interchanges (IL 84 north of Galena, Horseshoe Mound, Devils Ladder, IL 84 at Elizabeth, Woodbine, IL 78 at Stockton, IL 73 at Lena, Bolton Road at Freeport). The project includes the extension of Illinois Route 84 at Elizabeth and the relocation of a number of local roads. The project will require approximately 2785 acres of new right-of-way and 127.5 acres of existing highway right-of-way. Twelve alternatives where considered in the draft EIS with Alternate 2 being selected as the preferred.

The project lies within the Wisconsin Driftless Division (Jo Daviess County) and the Rock River Hill Country Division (Stephenson County) of the Natural Divisions of Illinois. Cover types occurring within 1,000 feet of the proposed project were identified using the U.S. Fish and Wildlife Service Classification System for the Habitat Evaluation Procedure. Seventy-seven percent of the project area is composed of Agricultural Land (row crop, pasture, hayfield). Other cover types within the project area include Upland Forest (15 percent), Developed Land (6 percent), Wetlands (0.7 percent), Shrubland (0.3 percent), Tree Plantation (0.3 percent), Others (0.3 percent), Pond (0.1 percent) and Streams (0.1 percent).

The 47-mile project area varies from steep valleys and ridges over 100 feet high near Galena to gently rolling terrain near Freeport. The soils in the project area are silt loams. The soils associated with stream crossings are listed as highly erodible soils (slopes of over 4 percent) and some have slopes up to 50%.

B. General Description:

1. *Area Subject to Section 404 Jurisdiction*: Potential waters of the United States that occur within the project area include the Galena River, Apple River, Hughlett Branch Creek, Smallpox Creek, Furnace Creek, Wolf Creek, Rush Creek, Mud Run Creek, Yellow Creek, Pecatonica River and/or tributaries of these streams.

Areas identified as wetlands were done using the Corps of Engineers Wetland Delineation Manual (1987) and exhibit positive evidence of wetland soils, wetland vegetation, and wetland hydrology. Nine wetland sites totaling 20.42 acres occur in the projects proposed right-of-way.

2. *Proposed Project Features-Recommended Alternative*: The proposed project involves a new four-lane roadway on new alignment. The new roadway will be access controlled. The project will involve the construction of permanent structures (eighteen bridges and sixty culverts) over the waterways within the project area. Ten wetland sites will be affected.

C. General Description of Dredged or Fill Material

1. *General Characteristics of Materials*

a. Fill Material: Fill materials include rock (quarry run limestone, crushed stone), concrete, and earthen material (silts and clays).

b. Dredged Material: Dredged material is defined as material that is either dredged or excavated from waters of the United States. Earthen material consisting of alluvial silts and clays will be excavated from some sites.

2. *Quantify of Material*: Quantities of rock, crushed stone, concrete, dredged and fill material will be determined in the Design Phase of the project.

3 *Source of Material:* Stone used for the project will be obtained from commercial stone quarries in the vicinity of the project area. Concrete will be obtained commercially. Earthen material will be obtained from onsite.

D. Description of the Proposed Discharge Sites

a. Streams Crossed By Bridges

The following streams will be crossed by bridges. A temporary causeway 40 feet wide constructed of clean aggregate stone and properly culverted for low flows will be used. Piers and abutments may or may not be placed within the stream banks. Flow (permanent, intermittent) is based on U.S. Geological Survey topographic maps. The 7Q10 (7-day 10-year low flow) is given for each stream, where available. Designated uses and level of support are taken from the 2002 Illinois Water Quality Report published by the Illinois EPA. Streams that are impaired (partial or non-support of their designated uses) are identified. Fish, mussel, and benthic macroinvertebrate information is from Wetzel et al (1995). The presence of the streams on the following lists is indicated; IEPA/IDNR Biological Stream Characterization (BSC), Biological Significant Streams of Illinois, and the National River Inventory (NRI), where appropriate. Work within the 100-year floodplain is also indicated where appropriate.

1. *Hughlett Branch Creek* (Station 585). Stream flow is intermittent. The project will require a bridge crossing the stream with a span of approximately 580 feet in length. The bottomland soil is the Beavercreek silt loam, frequently flooded. The adjacent upland soils are Dunbarton-Dubuque silt loam, 15-25% slopes, eroded and the Lacrescent silt loam, 15-30% slopes.

The creek in the project area averages approximately 7 feet in width. The substrate is mostly cobble with some gravel and sand; mud and silt deposits overlaying sand and gravel substrates, particularly in the small pockets of the stream that were isolated from direct flow, were observed. Stream banks were vegetated, with some shrubs and small trees. Predominant fish species include central stoneroller, common shiner, and southern redbelly dace. Twenty-eight benthic macroinvertebrates were identified, 32% of which are considered intolerant. The designated use for this stream is aquatic life, but this use has not been assessed by IEPA.

2. *Galena River* (Station 729). Stream flow is permanent and has a 7Q10 flow of 15.7 cfs. The project will require a bridge crossing the stream with a span of approximately 1625 feet in length. The river is approximately 50 feet in width. The substrate is mud and sand with some gravel. Stream banks were vegetated with some shrubs and small trees. Predominant fish species include spotfin shiner, common shiner, river shiner, sand shiner, and blutnose minnow. Mussels are present, with a total of 6 individuals representing one species (Lampsilis cardium). Forty-one taxa of benthic macroinvertebrates were identified, 46% of which are considered intolerant. The designated uses include aquatic life, fish consumption, and primary recreation (swimming). Aquatic life and fish consumption are in partial support of their use, swimming is in nonsupport of its use. The stream is listed on the Section 303(d) list of impaired streams. The bottomland soil is the Dorchester silt loam, occasionally flooded. The adjacent upland soils are the Fayette silt loam, 10-15% slopes, eroded; Lacrescent silty clay loam, 30-50% eroded; and the Medary silt clay loam, 15-45% slopes, eroded. The predominant cover types at the crossing are agricultural land (bottomland) and upland forest. Work within the 100-year floodplain involves pier placements (1742 square feet in area, volume of fill 13,914 cubic feet).

3. *Tributary Galena River*: (Station 765). Stream flow is permanent. The project will require a bridge over Stagecoach Trail and Tributary of the Galena River. The bridge will be approximately 1435 feet in length. The bottomland soil is the Beavercreek silt loam, frequently flooded. The adjacent upland soils are the Nasset silt loam 5-10% slopes, eroded and the Lacrescent silty clay loam 30-50% sopes, eroded. The predominant cover types are agricultural land (bottomland) and upland forest.

4. *Tributary Smallpox Creek.* (Station 888). Stream flow is intermittent. The project will require a bridge over a Tributary of Smallpox Creek. The bridge is approximately 600 feet in length. The bottomland soil is the Orion silt loam, occasionally flooded. The adjacent upland soils are the Lacresent silty clay loam, 30-50% slopes, eroded and the Dunbarton-Dubuque silt loam, 15-25% slopes, eroded. The dominant cover types are sedge meadow (wetland site 209) in the bottoms and upland forest and wooded pasture.

5. *Smallpox Creek.* (Station 929). Stream flow is permanent and has a 7Q10 flow of 2.0 cfs. Lake Galena occurs approximately 1.75 miles upstream of the bridge. The creek is approximately 28 feet in width and has a substrate of gravel and sand with some cobble and fine silt. Stream banks were

vegetated in some areas and rip rapped in others. The designate use is aquatic life, but this use has not been assessed by IEPA. Predominant species include common shiner, hornyhead chubb, rosyface shiner, blutnose minnow, creek chubb, fantail darter and fresh water drum. Mussels are present, with a total of 13 individuals representing two species (Anodonta grandis (5) and Toxolasma parvus (8)). Sixty-seven taxa of benthic macroinvertebrates were identified, 33% of which are considered intolerant. The predominant cover types are sedge meadow (wetland site 118), floodplain forest (non-wetland) in the bottomlands and upland forest and pasture in the adjacent uplands. Work within the 100-year floodplain involves pier placements (871 square feet in area, volume of fill 4,344 cubic yards).

6. Tributary Longhollow Creek. (Station 1268). Stream flow is intermittent. The project will require a bridge over this Tributary and will be approximately 600 feet in length. The bottomland soil is the Orion silt loam, occasionally flooded. The adjacent upland soils are the Lacresent silty clay loam, 30-50% slopes, eroded and the Raddle silt loam, 1-4% slopes, rarely flooded. The predominant cover type is pasture.

7. Furnace Creek (Station 1298). Stream flow is permanent and has a 7Q10 flow of 1.5 cfs. The project will require a bridge over Furnace Creek and adjacent Longhollow Road. The bridge is approximately 950 feet in length. The creek is approximately 16 feet in width and has a substrate of cobble over hard packed gravel with a fine silt covering. The designated use is aquatic life and in full support of this use. Predominant fish species include common shiner, bluntnose minnow, creek chub, fantail darter, and freshwater drum. Forty-six taxa of benthic macroinvertebrates were identified, 42% of which are considered intolerant. Furnace Creek has a Biological Stream Characterization rating of Class C (moderate aquatic resource). The bottomland soil is the Dorchester silt loam, occasionally flooded. The adjacent upland soils are the Lacrescent silty loam 15-30% slopes, Lacrescent silty loam 30-50% slopes, and the Palsgrove silty loam 15-25% slopes, eroded. The predominant cover types are agricultural land (bottoms) and pasture in the uplands. Work in the 100-year floodplain involves pier placements (1307 square feet in area and volume of fill 2613 cubic feet).

8. Furnace Creek (Station 144, IL 84 Extension). Stream flow is permanent. The extension of IL 84 to the new US 20 will require an additional bridge over Furnace Creek. The bridge is approximately 3500 feet downstream of the mainline bridge discussed above. The bridge is approximately 1000 feet in length. Biological and water quality criteria are similar to those described above. The bottomland soils are the Dorchester silt loam, occasionally flooded and Tice silt loam,occasionally flooded. The adjacent upland soils are Dubuque silt loam, 10-15% slopes, eroded and Fayette silt loam 10-15% slopes, eroded. The cover type is agricultural land.

9. Apple River (Station 1439). Stream flow is permanent and has a 7Q10 flow of 15.5 cfs. The project will require a bridge over the Apple River and adjacent Apple River Road. The bridge will be approximately 1300 feet in length. The river is approximately 23 feet in width with a substrate composed of mud. The designated uses are aquatic life, fish consumption, and primary

recreation (swimming). Aquatic life and fish consumption are in full use support. Swimming is in nonsupport of its use. The river is on the Section 303(d) impaired streams list. The substrate was predominately gravel with some silt and mud along the stream margins. The predominant fish species are black redhorse, common shiner, ozark minnow, rosyface shiner, fantail darter, and freshwater drum. Mussels are present, with a total of 9 individuals representing three species (Lampsilis cardium (2), Strophirus undulatus (4) and Toxolasma parvus (3)). Twenty-one taxa of benthic macroinvertebrate were identified, 56% of which are considered intolerant. The Apple River has a Biological Stream Characterization rating of Class B (highly valued aquatic resource), is on the list of Significant Illinois Streams, and is listed on the National Park Services National River Inventory because of its scenic, recreational, and geologic outstandingly resource values. The bottomland soils are the Wakeland and Huntsville silt loams, frequently flooded and the Raddle silt loam, 1-4% slopes, rarely flooded. The adjacent upland soils include the Lacrescent silty loam, 15-30% slopes and the Lacrescent silty loam, 30-50% slopes. The predominant cover types are Agricultural Land (bottoms) and upland forest. Work in the 100 year floodplain involves pier placements (2,178 feet in area, volume of fill 54,420 cubic feet)

10. Tributary Apple River (Station 1474+50). Stream flow is intermittent. The project will require a bridge over a Tributary to the Apple River and adjacent Becker Road. The bridge will be approximately 620 feet in length. The bottomland soil is the Dorchester silt loam, occasionally flooded. The adjacent upland soil is the Lacrescent siltloam, 15-30% slopes. The predominant cover types are pasture (bottomland) and upland forest.

11. Tributary Apple River (Station 1512 and 1518). Stream flow is intermittent. The project will require a bridge over Tributaries of the Apple River. The bridge will be approximately 1000 feet in length. At this location three intermittent streams come together. The stream channel under the proposed bridge will be modified to accommodate all three channels. The bottomland soil is the Beavercreek silt loam, frequently flooded and the adjacent upland soil is the Dunbarton-Dubuque silt loams, 15-25% slopes, eroded. The predominant cover types are pasture (bottomland and upland) and upland forest.

12. Tributary to Welsh Hollow (Station 1637). Stream flow is intermittent. The project will require a bridge over the tributary and adjacent Scout Camp Road. The bridge will be approximately 100 feet in length. The soils are Orion silt loam, occasionally flooded and the Lacrescent silt loam, 15-30% slopes. The cover type is pasture.

13. Welsh Hollow Tributary (Station 1678). Stream flow is intermittent. The project will require a bridge over two Tributaries of Welsh Hollow and an access road will be built under the bridge near the eastern abutment. The two tributaries have intermittent flow and join at the bridge location. The bridge will be approximately 600 feet in length. The soils include the Dorchester silt loam, occasionally flooded (bottomland) and the Lacrescent silt loam, 15-25% slopes and Fayette silt loam, 15-25% slopes, eroded

(uplands). The predominant cover type is pasture and a strip of woody riparian habitat on the east side of the stream.

14. Welsh Hollow Tributary (Station 1712). Stream flow is permanent. The project will require a bridge over a Tributary to Welsh Hollow and will be approximately 600 feet in length. The soils include the Beavercreek silt loam, frequently flooded (bottomland) and the Lacrescent silt loam 15-30% slopes and Lacrescent silty clay loam, 30-50% slopes (uplands). The predominant cover types are pasture, agricultural land, and upland forest.

15. Rush Creek (Station 1866) and Tributary (Station 1862). Rush Creek has permanent flow and has a 7Q10 flow of 0.0 cfs. The project will require a bridge over Rush Creek and it's Tributary. The bridge will be approximately 750 feet in length. The creek is approximately 18 feet in width with a substrate composed of cobble with gravel and silt. The creek has not been assessed by IEPA. The predominant fish species include common shiner, hornyhead chubb, southern redbelly dace, blutnose minnow, fantail darter, and freshwater drum. Mussels are present, represented by one individual of the species, Ligurnia recta. Forty-seven taxa of benthic macroinvertebrates were identified, 22% of which are considered intolerant. The soils are the Beavercreek silt loam, frequently flooded (bottomlands) and the Lacrescent silty loam, 15-30% slopes. The predominant cover types are wooded pasture and wetlands. Wetland complex 5s occurs along Rush Creek. Many additional wetlands occur down stream of the bridge site.

16. Tributary Yellow Creek (Station 4116). Jo Daviess County. Stream flow is permanent. The project will require a bridge over a Tributary of Yellow Creek and will be approximately 420 feet in length. Thirty-one taxa of benthic macroinvertebrates were identified, 37% of which are considered intolerant. The soils are the Lawson silt loam, frequently flooded (bottomland) and the Tama silt loam, 2-5% slopes and Fayette silt loam, 10-15% slopes, eroded (uplands). The predominant cover type is agricultural land. Work within the 100 year floodplain includes embankment (13,939 square feet in area) and pier placements (871 square feet in area). Total floodplain volume of fill will be 23,484 cubic feet.

17. Yellow Creek (Station 4535). Stephenson County. Stream flow is permanent and has a 7Q10 of 1.0 cfs. The project will require a bridge over Yellow Creek and will be approximately 1320 feet in length. The existing Stees Road Bridge (approximately 110 feet in length) over Yellow Creek will be reconstructed. This bridge is approximately 400 feet north of the proposed US 20 crossing. The designated use is aquatic life. The stream is in partial support of this use and is on the IEPA Section 303(d) list of impaired streams. The stream is approximately 23 feet in width with a substrate of cobble, mud, gravel and some fine silt in some spots. Dominant species of fish include bigmouth shiner, sand shiner, freshwater drum, redfin shiner, blutnose minnow and creek chub. Mussels are present, with a total of 10 individuals representing two species (Anodonta grandis (4) and Toxolasma parvus (6)). Fifty-four taxa of benthic macroinvertebrates were identified, 30% of which are considered intolerant. Yellow Creek has a Biological Stream Characterization rating of Class C (moderate aquatic resource). The soils are the Lawson silt loam

(bottomlands) and the Fayette silt loam, 4-7% slopes, moderately eroded. The predominant cover type is Agricultural land. Work in the 100 year floodplain will consist of embankment (32,235 square feet in area) and pier placement (2,178 square feet in area). Total floodplain volume of fill will be 38,952 cubic feet.

18. Yellow Creek (Stees Road; Station 12+50). Stephenson County. This crossing is approximately 400 feet upstream of the mainline US 20 discussed above. The bridge over Yellow Creek will be approximately 110 feet in length. All aquatic features described for the mainline US 20 also apply to the Stees Road crossing. The soils are the Fayette silt loam, 4-7% slopes, moderately eroded. The predominant cover type is Cropland.

b. Streams Crossed By Culverts

The following stream segments will have culverts. Stream flow (permanent, intermittent, or ephemeral) is based on U.S. Geological Survey topographic maps. The culverts range in from 150 to 1300 feet in length. Due to the rugged terrain traversed by the project, channelization of some of these streams will be necessary. These channelized streams will be in culverts. There is no published seven day 10 year (7Q10) low flow data for most of these streams (except Mud Run Creek). None of these streams, except Mud Run Creek, have been assessed in the 2002 Illinois Water Quality report. None of these streams are listed on the IEPA/IDNR Biological Stream Classification (BSC), Biologically Significant Illinois Streams, or the National Park Services National Rivers Inventory lists.

1. Tributary Mississippi River (Station 516+50). Stream flow is intermittent. Culvert is within the southwestern quadrant of the US 20/IL 84 interchange and is approximately 500 feet in length; soils are Orion silt loam, occasionally flooded and Rozetta silt loam, 5-10% slopes, eroded. Cover type's agricultural land and pasture.

2. Tributary Hughlett Branch Creek Station 551+50). Stream flow is intermittent. Drainage Area is 316 acres. The culvert will be about 335 feet in length. The bottomland soil is the Wakeland silt loam, frequently flooded. The adjacent upland soil is the Fayette silt loam, 10-15% slopes, eroded. Dominant cover types at the crossing are pasture and upland forest.

3. Tributary Hughlett Branch (Station 571). Stream flow is ephemeral. Culvert is 300 feet in length. Cover type wooded pasture. Soil Fayette silt loam, 10-15% slopes, eroded.

4.Tributary Hughlett Branch (Station 609). Stream flow is intermittent. Culvert is 500 feet in length. Cover type agricultural land. Beavercreek silt loam, frequently flooded

5. Tributary Hughlett Branch (Station 623). Stream flow is ephemeral. Culvert is 500 feet in length. Cover type pasture. Soil Dubuque silt loam, 10-15% slopes, eroded.

6. Tributary Galena River (Station 690). Stream flow is ephemeral. Culvert is 400 feet in length. Cover type wooded pasture. Soil is Fayette silt loam, 15-25% slopes, eroded.

7. Tributary Galena River (Station 700+50). Stream flow is intermittent. Culvert is 700 feet in length. Cover Type is forested and pasture. Soil is Fayette silt loam, 15-25% slopes, eroded.

8. Tributary Galena River (Station 711). Stream flow is ephemeral. Culvert is 450 feet in length. Cover type is forested. Soil is Fayette silt loam, 15-25% slopes, eroded.

9. Tributary Galena River (Station 741). Stream flow is intermittent. A 500-foot channel change is required. Cover type is wooded pasture. Soil is Fayette silt loam, 15-25% slopes, eroded.

10. Tributary Smallpox Creek (Station 944 +50). Stream flow is ephemeral. Culvert will be 400 feet in length. Cover type forested. Soil is Lacrescent silty clay loam, 30-50% slopes.

11. Tributary Smallpox Creek (Station 960). Stream flow is ephemeral. An 800-foot channel change will be required. Cover type is forest. Soil is Lacrescent silty clay loam, 30-50% slopes.

12. Tributary Smallpox Creek (Station 978+50). Stream flow is intermittent. A 450-foot channel change is required. Cover type wooded pasture. Soil is Derinda silt loam, 15-25% slopes, eroded.

13. Tributary Smallpox Creek (Station 1002).Stream flow is ephemeral. A 300-foot channel change is required. Cover type is pasture. Soil is Dunbarton-Dubuque silt loams, 15-25% slopes, eroded

14. Tributary Smallpox Creek (Station 104+00; Devil's Ladder Interchange-Ramp 1). Stream flow ephemeral. Length 178 feet. Soil Type Lacrescent silt loam, 15 to 30% slopes. Cover Types forested.

15. Tributary Smallpox Creek (Station 223+50; Devil's Ladder Interchange-Ramp 2). Stream flow ephemeral. Length 100 feet. Soil type is Lacrescent silt loam, 15 to 30% slopes. Cover type forested.

16. Tributary Smallpox Creek (Station 523+75; Devil's Ladder Interchange). Stream flow permanent. Length 117 feet. Drainage Area 770 acres. Soil type is Orion silt loam, occasionally flooded. Cover type pasture.

17. Tributary Irish Hollow Creek (Station 1069+50). Stream flow is intermittent. Culvert will be 425 feet in length. Cover type is forest. Soil type is Fayette silt loam, 15-25% slopes, eroded.

18. Tributary Long Hollow Creek (Station 1108). Stream flow is intermittent. Culvert will be 550 feet in length. Cover type is forest. Soil type is Fayette silt loam, 15-25% slopes, eroded.

19. Tributary Long Hollow Creek (Station 1126+50). Stream flow is intermittent. A 1300-foot channel change will be required. Cover type is agricultural land. Soil type is Derinda silt loam, 15-25% slopes, eroded.

20. Tributary Long Hollow Creek (Station 1188). Stream flow is intermittent. A 350-foot channel change will be required. Cover type is pasture. Soil type is Lacrescent silt loam, 15-30% slopes.

21. Tributary Long Hollow Creek (Station 1216+50). Stream flow is intermittent. A 400-foot channel change will be required. Cover type is pasture. Soil type is Derinda silt loam, 15-25% slopes, eroded.

22. Tributary Apple River (Station 1370). Stream flow is intermittent. A 450-foot channel change is required. Cover type is wooded pasture. Soil type is Fayette silt loam, 15-25% slopes, eroded.

23. Tributary Apple River (Station 1398). Stream flow is intermittent. A 400-foot channel change is required. Cover type is forest. Soil type is Fayette silt loam, 15-25% slopes, eroded.

24. Tributary Apple River. Woodbine Spur Road realignment (Station 496 to 508). Stream flow is intermittent. Cover types are agricultural land and upland forest. Soil types are Orion silt loam, occasionally flooded within the drainage and Dubuque silt loam, 10-15% slopes, eroded and Palsgrove silt loam, 10-15% slopes, eroded in the adjacent uplands.

25. Tributary Apple River (Station 508+00; Woodbine Road Spur). Stream flow is intermittent. Length 375 feet. Soil type is Beavercreek silt loam, frequently flooded. Cover type pasture.

26. Tributary Apple River (Station 496+20; Woodbine Road Spur). Stream flow is ephemeral. Length 100 feet. Soil type Fayette silt loam, 15 to 25% slopes, eroded. Cover type pasture.

27. Tributary Welsh Hollow (Station 1646). Stream flow is ephemeral. A 400-foot channel change is required. Cover type is wooded pasture. Soil type is Dunbarton-Dubuque silt loams, 7-15% slopes, eroded.

28. Tributary Welsh Hollow (Station 1651). Stream flow is intermittent. A 400-foot channel change is required. Cover type is pasture. Soil type is Lacrescent silt loam, 15-30% slopes.

29. Tributary Welsh Hollow (Station 1758+50). Stream flow is intermittent. Culvert will be 300 feet in length. Cover type is pasture. Soil type is Dunbarton-Dubuque silt loam, 15-25% slopes, eroded.

30. Tributary Rush Creek (Station 1840). Stream flow is permanent. A 500-foot channel change will be required. Cover types is wetlands (Site 6s). Soil type is Beavercreek silt loam, frequently flooded.

31. Mud Run Creek (Station 3926) and under Park Road. Stream flow is intermittent. A 425-foot channel change is required. Cover type is agricultural land. Soil type is Beaucoup silty clay loam, occasionally flooded.

32. Mud Run Creek (Station 37). Stream flow is permanent and the 7Q10 flow is 0.9 cfs. The designated use for Mud Run Creek is aquatic life. The creek is in nonsupport of this use. The potential cause of this impairment is nutrients (phosphorus, nitrates) and organic enrichment from municipal point sources. Culvert will be 450 feet in length. Cover type is agricultural land. Soil type is Beaucoup silty clay loam, occasionally flooded.

33. Mud Run Creek (Station 17+50; Park Road). Stream flow is intermittent. Drainage Area 1,777 acres. Length 206 feet. Soil type is Beaucoup silty clay loam, occasionally flooded. Cover type is cropland.

34. Tributary Yellow Creek (Station 157). Stream flow is ephemeral. Culvert will be 325 feet in length. Cover type is agricultural land. Soil type is Rozetta silt loam, 10-15% slopes, eroded.

35. Tributary Yellow Creek (Station 4596+50). Stream flow is intermittent. A 400-foot channel change will be required. Cover type is agricultural land. Soil type is Fayette silt loam, 4-7% slopes.

36. Tributary Yellow Creek (station 4622). Stream flow is intermittent. Culvert will be 300 feet in length. Cover type is pasture. Soil type is Fayette silt loam, 4-7% slopes.

37. Tributary Yellow Creek (Station 4634). Stream flow is ephemeral. A 250-foot channel change will be required. Cover type is hayfield/agricultural land. Soil type is Fishhook-Atlas complex, 7-12% slopes, moderately eroded.

38. Tributary Yellow Creek (Station 4651). Stream flow is intermittent. A 250-foot channel change will be required. Cover type is pasture. Soil type is Radford silt loam.

39. Tributary Yellow Creek (Station 4678). Stream flow is intermittent. A 300-foot channel change will be required. Cover type is forest. Soil type is Radford silt loam.

40. Tributary Yellow Creek (Station 4689). Stream flow is ephemeral. Culvert will be 250 feet in length. Cover type is agricultural land. Soil type is Radford silt loam.

41. Tributary Yellow Creek (Station 4725+50). Stream flow is intermittent. Culvert will be 375 feet in length. Cover type is forest. Soil type is Radford silt loam.

42. Tributary Yellow Creek (Station 4733). Stream flow is permanent. A 400-foot channel change will be required. Forty-one taxa of benthic macroinvertebrates were identified, 38% of which are considered intolerant. Cover type is agricultural land. Soil type is Radford silt loam.

43. Tributary Yellow Creek (Station 4789+50). Stream flow is intermittent. A total of 1100 feet of channel through the interchange will be affected. Cover type is agricultural land. Soil type is Radford silt loam.

44. Tributary Yellow Creek (Station 4809). Stream flow is intermittent. Culvert will be 300 feet in length. Cover type is agricultural land. Soil type is Lawson silt loam.

45. Tributary Yellow Creek (Station 4835+50). Stream flow is intermittent. A 300-foot channel change will be required. Cover type is agricultural land. Soil type is Radford silt loam.

46. Tributary Waddams Creek (Station 4865+50). Stream flow is ephemeral. Culvert will be 250 feet in length. Cover type is wooded pasture. Soil type is Fayette silt loam, 4-7% slopes.

47. Tributary Waddams Creek (Station 4879+50). Stream flow is intermittent. Culvert will be 300 feet in length. Cover type is wooded pasture. Soil type is Dorchester silt loam.

48. Tributary Waddams Creek (Station 4909+50). Stream flow is intermittent. Culvert will be 400 feet in length. Cover type is agricultural land. Soil type is Fishhook-Atlas complex, 7-12% slopes, moderately eroded.

49. Unnamed Tributary of the Pecatonica River (Station 5009). Stream flow is permanent. A 300-foot channel change will be required. Cover type is pasture. Soil type is Sogn silt loam, 18-50% slopes, moderately eroded. There will be seven crossings of this Tributary to the Pecatonica River. Substrate was hard clay overlain with cobble and gravel. Forty taxa of benthic macroinvertebrates were identified, 36% of which are considered intolerant.

50. Unnamed Tributary of the Pecatonica River. (Station 12+50; Elroy Road). Stream flow is permanent. Length 122 feet. Soil type is Radford silt loam. Cover type is pasture.

51. Unnamed Tributary of the Pecatonica River. (Station 12+50; Rink Road). Stream flow is permanent. Length 176 feet. Soil type is Radford silt loam. Cover type is pasture.

52. Unnamed Tributary of the Pecatonica River. (Station 5041+50). Stream flow is intermittent. A 300-foot channel change will be required. Cover type is agricultural land. Soil type is Radford silt loam.

53. Unnamed Tributary of the Pecatonica River. (Station 5051+50). Stream flow is permanent. A 150-foot channel change is required. Cover type is agricultural land. Soil type is Radford silt loam.

54. Unnamed Tributary of the Pecatonica River. (Station 5102+50). Stream flow is intermittent. A 300-foot channel change is required. Cover type is agricultural land. Soil type is Orion silt loam.

55. Unnamed Tributary of the Pecatonica River. (Station 41, Bolton road). Stream flow is permanent. Culvert will be 150 feet in length. Cover type is forest. Soil type is Orion silt loam.

56. Unnamed Tributary of the Pecatonica River. (Station 41+00, Bolton road). Stream flow is ephemeral.

57. Unnamed Tributary of the Pecatonica River. (Station 106+50; Ayp Road). Stream flow permanent. Length 158 feet. Base floodplain, embankment 107,158 square feet, volume of fill, 214,184 cubic feet. Cover type is forest. Soil type is Orion silt loam.

58. Unnamed Tributary (2^{nd}) to the Pecatonica River (Station 5150+50). Stream flow is ephemeral. Culvert will be 325 feet in length. Cover type is agricultural land. Immediately downstream are wetlands (site 1s). The soil type is

c. Wetland Fills

Wetlands. Wetlands were delineated using the 1987 Corps of Engineers Wetland Delineation Manual. The Floristic Quality Index (FQI) follows Taft et al 1998.

Site 4 (Station 5091). Stephenson County. This Wet Meadow with an FQI of 10.6 is 0.24 acres in size. The wetland occurs in an abandoned stream channel of an Unnamed Tributary of the Pecatonica River. The wetland site is east of Flansburg Road. The project will fill approximately 0.24 acres of this wetland.

Site 24 (Station 4640). Stephenson County. This sedge meadow with an FQI of 10.1 is 0.34 acres in size. The wetland is associated with a Tributary of Yellow Creek. The wetland site is east of Waddams Grove Road. The project will fill approximately 0.05 acres of this wetland.

Site 25 (Station 4640). Stephenson County. This wet meadow with an FQI of 5.7 is 1.74 acres in size. The wetland is associated with a Tributary of Yellow Creek. The wetland site is west of Waddams Grove Road. The project will fill approximately 0.28 acres of this wetland.

Site 83 (Station 1580). Jo Daviess County. This wet meadow with an FQI of 4.1 is 1.74 acres in size. The wetland is located in an impoundment along a drainage way. The project will fill approximately 0.08 acres of this wetland.

Site 118 (Station 921). Jo Daviess County. This sedge meadow with an FQI of 12.9 is 2.55 acres in size. The wetland is located along Smallpox Creek. The project will fill approximately 0.85 acres of this wetland.

Site 120 (Station 795). Jo Daviess County. This pond with an FQI of 15.6 is 3.44 acres in size. The wetland is an impoundment located in a ravine. The project will fill approximately 0.03 acres of this wetland.

Site 209 (Station 888). Jo Daviess County. This sedge meadow with an FQI of 20.8 is 3.63 acres in size. The wetland is located along a Tributary of Smallpox Creek. The project will fill approximately 0.91 acres of this wetland.

Site 5s (Station 1865). Jo Daviess County. This sedge meadow with an FQI of 17.6 is 3.44 acres in size. The wetland is located along Rush Creek. The project will fill approximately 0.63 acres of this wetland.

Site 6s (Station 1841). Jo Daviess County. This marsh with an FQI of 13.9 is 4.79 acres in size. The wetland is located along a Tributary of Rush Creek. The project will fill approximately 0.61 acres of this wetland.

III. TECHNICAL EVALUATION FACTORS

A. Physical and Chemical Characteristics of the Aquatic Ecosystem

1. *Substrate Impacts:* The construction of some bridges with piers in the stream will have minimal adverse effects. The construction of box culverts will have substrate impacts that range from minimal to substantiate adverse effects. Box culvert placement at some locations will require full to partial channelization of a stream. The substrate in these locations will be filled. The substrate in wetlands in the project area will be filled. Adverse effects should be minimal.

2. *Suspended Particulates/Turbidity Impacts:* Construction of the bridges and box culverts require the clearing of vegetation, excavation, and grading of the work site. The soils in these areas have soil textures of silty clay loams (27-40% clay and less than 20% sand) and silt loams (50% or more silt and 12-27% clay or 50-80% silt and less than 12% clay). Some of this soil will be discharged into the adjacent water body. The majority of this material will be silts and clays. Since these particles are small in size they can travel further downstream and stay in suspension longer in the water column.

3. *Water Column Impacts:* The proposed project will not change the water chemistry, salinity, odor, taste, dissolved gas levels, temperature of any of the water bodies in the project area. The project will not change existing current patterns, circulation, downstream flows or normal water fluctuation. There should be no adverse effects on these parameters. During construction, water color, could be temporarily changed during large rain events. This adverse effect should be minimal.

4. *Alteration of Current Patterns and Water Circulation:* The discharge of dredged and fill material is not expected to modify current patterns and water circulation.

5. *Alteration of normal water fluctuations/Hydroperiod*: The discharge of dredged and fill material is not expected to change existing water fluctuations.

6. *Alteration of Salinity Gradients*: Not Applicable.

B. Biological Characteristics of the Aquatic Ecosystem

1. *Effect on Threatened/Endangered Species and Their Habitat*: The U.S. Fish and Wildlife Service North Central Regions "Redbook" of threatened and endangered species list the bald eagle, Iowa Pleistocene snail, Karner blue butterfly, Higgin's eye pearly mussel and eastern prairie fringed orchid as occurring in Jo Daviess County. The Indiana bat is listed as occurring in Jo Daviess and Stephenson Counties. The area was surveyed for these species. There is no habitat for any of these species in the project area. A letter from the U.S. Fish and Wildlife Service dated June 17, 2003 indicated that no further action on this project as required under Section 7 of the Endangered Species Act is required.

Three state listed species are known to occur in the project area, the timber rattlesnake, cerulean warbler, and the inland New Jersey tea. Commitments have been made with regards the timber rattlesnake and the cerulean warbler. The project will not impact the inland New Jersey tea. A letter from the Illinois DNR dated July 18, 2003 indicated that the project as described in the draft EIS will not have any adverse impacts on Illinois threatened or endangered species.

2. *Effect on the Aquatic Food Web*: The discharge of dredged or fill material will have minor, short term effects on fish, crustaceans, mollusks, insects, annelids, planktonic organisms, and the plants and animals on which they feed.

3. *Effect on Other Wildlife*: The discharge of dredged or fill material is not expected to have an effect on wildlife (mammals, birds, reptiles, and amphibians) associated with aquatic systems.

C. Special Aquatic Sites

1. *Sanctuaries and Refuges*: The Tapley Woods Conservation Area occurs within the project area. The proposed project requires no right-of-way from this resource, though the Conservation Area is adjacent to the project for a short distance. No adverse effects are expected.

2. *Wetlands*: A total of approximately 3.65 acres of wetland from nine wetland sites will be filled by the proposed project. The wetland losses will be mitigated at the Kilbuck Creek Wetland Mitigation Site south of Rockford, Illinois. Based on the Illinois Interagency Wetland Policy Act of 1989, the 1996 implementing rules and the IDOT Wetlands Action Plan as approved by Illinois DNR, wetland compensation totaling approximately 17.75 acres is required.

3. *Mud Flats*: There are no mud flats in the project area.

4. *Vegetated Shallows*: There were no vegetated shallows identified in the project area.

5. *Coral Reefs:* Not Applicable.

6. *Riffle and Pool Complexes:* Not Applicable.

D. Human Use Characteristics

1. *Effects on Municipal and Private Water Supplies*: None of the streams in the project area are used as a source of public drinking water supply. Private water wells were identified within 1,000 feet of the project right-of-way. None of these wells will be impacted by the project.

2. *Recreational and Commercial Fisheries Impacts:* There are no commercial fisheries in the project area. The Apple River has a tradition as a strong smallmouth bass fishery and is used for recreational fishing. The project will have minimal adverse effects on recreational fishing.

3. *Effects on Water Related Recreation:* The Apple River has recreational floating. During construction (two years) of the bridge, floating in the vicinity of the bridge will be impaired by the use of a causeway. The project will have minimal adverse effects on recreational floating.

4. *Aesthetics Impacts:* Construction activity will have minor impacts on the aesthetic quality of the project area during the duration of the work. The most visible activities will occur adjacent to the Apple River (construction of the bridges). See the text of the FEIS for a discussion of these impacts.

5. *Effects on Parks, National and Historic Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves:*

The project passes adjacent to the Tapley Woods Conservation Area. No right-of-way will be taken from the Conservation Area. The project will not impact the Conservation Area.

G. Determination of Cumulative Effects on the Aquatic Ecosystem: The project will not have a cumulative effect on the aquatic ecosystem.

H. Determination of Secondary Effects on the Aquatic Ecosystem: The project will not have a secondary effect on the aquatic ecosystem.

IV. FINDINGS OF COMPLIANCE OR NON-COMPLIANCE WITH THE RESTRICTIONS ON DISCHARGE

A. Adaptation of the Section 404(b)1 Guidelines to this Evaluation: In our evaluation of discharges proposed in connection with this project, the Environmental Protection Agency's Section 404(b)(1) Guidelines of December 24, 1980 were applied without significant adaptation.

B. Evaluation of Availability of Practicable Alternatives to the Proposed Discharge Site Which Would Have Less Adverse Impact on the Aquatic Ecosystem: About 1.0 percent of the project area is a water of the United States. Drainage patterns in the project area make avoidance of aquatic ecosystems not practicable. The recommended alternative has the least adverse impact on the aquatic ecosystem.

C. Compliance with Applicable State Water Quality Standards: Water quality certification under Section 401 of the Clean Water Act has not been issued yet, but is anticipated.

D. Compliance with Applicable Toxic Effluent Standard or Prohibition Under Section 307 of the Clean Water Act: The proposed action will not violate the toxic effluent standards of Section 307 of the Clean Water Act.

E. Compliance with Endangered Species Act of 1973: The project will not jeopardize the existence of federally listed endangered or threatened species or their critical habitat.

F. Compliance with Specified Protection Measures for Marine Sanctuaries Designated by the Marine Protection, Research, and Sanctuaries Act of 1972: Not Applicable.

G. Findings of Significant Degradation of the Waters of the United States: The proposed project will not result in significant adverse effects on human health and welfare, including municipal and private water supplies, recreation and commercial fishing, plankton, fish, shellfish, wildlife, and special aquatic sites. The life stages of aquatic life and other wildlife would not be adversely affected in a significant manner. Significant adverse effects on aquatic ecosystem diversity, productivity and stability, and recreational, aesthetic and economic values would not occur.

H. Appropriate and Practicable Steps Taken to Minimize Potential Adverse Impacts of the Discharge on the Aquatic Ecosystem: All appropriate and practicable measures have been taken through application of procedures contained in Subpart H of the Guidelines to insure minimal adverse effects of the proposed discharges.

I. On the Basis of the Guidelines the Proposed Disposal Sites for the Discharge of Dredged and Fill Material: Based on this evaluation, the proposed work is specified as complying with the requirements of these guidelines with the inclusion of appropriate and practicable conditions to minimize pollution or adverse effects to the aquatic ecosystem.

CHP/